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**PIONEER 12
(PN-12)**

NC 473657

TDS Mgr: A. Berman
NOPE: L. Shaw

Project Mgr: R. Fimmel (ARC)
MOM: D. Lozier (ARC)

Launch Date: May 20, 1978

Projected SC Life/DSN Support: August 1992/August 1992

Project Responsibility: Ames Research Center (ARC)

Source: SIRD September 1983/NSP June 1984

Sponsor: OSO

A. MISSION DESCRIPTION

The Pioneer 12 investigates the atmospheric characteristics of Venus and the region about the planet. Additionally, the spacecraft performs altimetry and planetary imaging.

B. FLIGHT PROFILE

The Pioneer 12 spacecraft is in a 24-hour elliptical orbit about Venus. Atmospheric and altimetry data are obtained mainly around periapsis, and planetary imaging is normally performed around apoapsis. The spacecraft is expected to enter the Venusian atmosphere in 1992.

C. COVERAGE

1. Coverage Goals

<u>Mission Phase</u>	<u>Period</u>	<u>Passes/Month</u>	<u>Antennas</u>
Orbit	1/89-8/92	60	34-m STD
	1/89-8/92	3	70-m

2. Network Support

The support provided by the DSN is indicated in the following table:

<u>System</u>	<u>Goldstone</u>				<u>Canberra</u>				<u>Madrid</u>		
	12	14	15	16	42	43	45	46	61	63	66
S-band TLM		P	P		B	P	P		P	P	
S-band CMD		P			B	P			P	P	
S-band TRK		P			B	P			P	P	
X-band TRK		P			B	P			P	P	

NOTE: P = Prime; B = Backup

D. FREQUENCY ASSIGNMENTS

Frequencies are allocated according to the following table:

<u>System</u>	<u>Uplink (MHz)</u>	<u>Downlink (MHz)</u>	<u>Polarization</u>
S-band TLM	-	2293.888 or 2294.259	RCP/Linear
S-band CMD	2112.289 or 2112.630	-	RCP/Linear
S-band TRK	2112.289 or 2112.630	2293.888 or 2294.259	RCP/Linear
X-band TRK	-	8410.925 or 8412.283	RCP

E. SUPPORT PARAMETERS

The support parameters for the Telemetry, Command, and Support Systems are listed below:

(1) Telemetry

Data Streams	1
Format	PCM(NRZ-L)/PSK/PM
Subcarrier Frequency	16 kHz
Bit Rate	8, 16, 32, 64, 128, 170.66, 256, 341.33, 512, 682.66, 1024, 2048 b/s
Record	Required

(2) Command

Format	PCM/FSK/PM
Bit Rate	4 b/s
Subcarrier Frequency	100, 250 Hz

(3) Support

Uplink Power	10 to 100 kW
Antenna Rate	Sidereal
Antenna Angle Data	Not required
Antenna Autotrack	Not required (Conscan for X-band)
Doppler	
. Range	+210 kHz
. Rate	50-150 Hz
Recording	
. Analog	Not required
. Digital	Required

F. TRACKING SUPPORT RESPONSIBILITY

The allocation of responsibilities for tracking support is listed in the following table:

<u>Mission Phase</u>	<u>Support Responsibility</u>
Planetary	DSN

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